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PATENT

Attorney Reference Number 4630-58963
Application Number 09/857,583

Listing of Claims

1. (Currently Amended) A purified protein having Δ^8 fatty acid desaturase activity, and comprising an amino acid sequence selected from the group consisting of:

(a) an amino acid sequence as shown in SEQ ID NO: 4;

(b) an amino acid sequence that differs from that specified in (a) by one or more conservative amino acid substitutions; and

(c) an amino acid sequences having at least 95% sequence identity to the sequences specified in (a) or (b).

2. (Original) An isolated nucleic acid molecule encoding a protein according to claim 1.

3. (Previously Presented) The isolated nucleic acid molecule of claim 2, comprising a sequence as shown in SEQ ID NO: 3.

4. (Original) A recombinant nucleic acid molecule, comprising a control sequence operably linked to the nucleic acid sequence of claim 2.

5. (Original) A cell transformed with the recombinant nucleic acid molecule of claim 4.

6. (Currently Amended) A cell transformed with the recombinant nucleic acid molecule of claim 4 and a nucleic acid molecule that encodes a protein having Δ^5 fatty acid desaturase activity, selected from the group consisting of:

(a) a nucleic acid molecule as shown in SEQ ID NO: 1; and

(b) a nucleic acid molecule that has at least 95% sequence identity to the nucleic acid molecule shown in (a).

7. (Original) The cell of claim 5, wherein the cell is a plant cell.

8. (Currently Amended) An isolated nucleic acid molecule that:

(a) hybridizes under high-stringency conditions with a nucleic acid probe, the probe comprising a sequence as shown in SEQ ID NO: 3; and

(b) encodes a protein having Δ^8 fatty acid desaturase activity.

9. (Currently Amended) An isolated or recombinant Δ^8 fatty acid desaturase encoded by the nucleic acid molecule of claim 8.

10. (Original) A recombinant nucleic acid molecule, comprising a promoter sequence operably linked to the nucleic acid molecule of claim 8.

11. (Original) A cell transformed with the recombinant nucleic acid molecule of claim 10.

12. and 13. (Canceled)

14. (Currently Amended) An isolated nucleic acid molecule that:

(a) has at least 95% sequence identity with a nucleic acid sequence as shown in SEQ ID NO: 3; and

(b) encodes a protein having Δ^8 fatty acid desaturase activity.

15. through 27. (Canceled)

28. (Currently Amended) The isolated nucleic acid molecule of claim 8, wherein the nucleic acid molecule hybridizes under very high-stringency conditions with said ~~the~~ nucleic acid probe.

29. (Currently Amended) An isolated or recombinant Δ^8 fatty acid desaturase encoded by the nucleic acid molecule of claim 28.

30. (Previously Presented) A recombinant nucleic acid molecule, comprising a promoter sequence operably linked to the nucleic acid molecule of claim 28.

31. (Previously Presented) A cell transformed with the recombinant nucleic acid molecule of claim 30.